PEEPING THE PAST - THROUGH PALAEOLITHIC TOOLS

(An Introduction)

Dr. S. Vasanthi, MA, MPhil, PhD

PEEPING THE PAST – THROUGH PALAEOLITHIC TOOLS
(AN INTRODUCTION)

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Father of Indian Pre-History

ROBERT BRUCE FOOTE
(1834-1912)

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GUDIYAM CAVE ENTRANCE VIEW

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FOREWORD

The Prehistoric sites mostly of Paleolithic period are found concentrated in Sohan Valley of Siwalik Hills, Northern India and Allikuli Hills, Tiruvallur District in Tamil Nadu. Stone implements worked by the early men at Sohan Valley of Shiwalik Hills, Northern India are Abbevillian in technique while implements from Poondi reservoir (Allikuli Hills) are Acheulian in technique. Since tools are found in large quantity in Sohan Valley, the tools assemblages is called 'Sohan Valley Industry'. Likewise, implements from Poondi are known as 'Madras Hand-Axe' as the sites are close to Madras (now Chennai). On account of yielding of good number of stone tools found, tools assemblage site is called 'Madras Hand-Axe Industry'. The pioneer work by R.B.Foote, British Geologist who found the first tool at Pallavaram near Madras (Chennai) in the year 1863 had led to the discovery of Paleolithic sites around Poondi, Tiruvallur District. Subsequently, Indian scholars have also worked on that and found many sites and collected Paleolithic implements in this region.

Apart from exploration, excavation conducted by the Archaeological Survey of India and Tamil Nadu State Department of Archaeology has thrown light on the environmental changes that occurred in the geological past in this area and yielded invaluable implements from various chronological levels. Recently, in the year 2005-06, the State Department of Archaeology excavated the site at Parikulam and unearthed a number of Paleolithic tools such as Scrapper, Hammer, Ovoid, Discoid, etc., confirming the richness of the area. An exhibition was held subsequently and the findings have been published in the book released in 2007.

Stone tools collected from exploration and excavation conducted at Parikulam and collection from Prehistoric Museum, Poondi are listed in this catalogue with brief details along with photographs for better understanding. Paleolithic implements described in this booklet are collections from Attirampakkam (Type area)., Gudiyam (Prehistoric shelter is located), Vadamadurai, Ariyattur, Arumpakkam, Krishnapuram, Rangapuram, Nambakkam, Mailapur, Kutchchur, Parikulam (tools from exploration and excavation) and Manavur. Weight and measurements are taken using Digital Weighing Machine and Digital Vernier Caliper.

I wish to thank Messers. K.S.Sampath, Epigraphist, S.Sreekumar, Technical Assistant and M.T.Sridharan (Photographer) for their efforts in bringing out this booklet in compact form. The chemical cleaning done by Messers.M.S.Ashok Deen and P.Ravishankar is appreciable.The valuable suggestion rendered in the preparation of catalogue by Dr.Shanti Pappu, Sharma Centre for Heritage Education, India, is appreciable. I express my thanks to B.Saraswathy, V.Annamalai (Students of Institute of Epigraphy, Dept of Archaeology) and B.Gunasundari for their contribution of leaf impression in Gondwana Shale (Gondwana Formation- Carboniferous period) from Gunduperumbudur for display in the Exhibit room at Commissioner's Office at Chennai. I extend my thanks to Messers M.Noor Bhasha (Retd-Superitendent) and M.D.Prakash, Junior Assistant for their secretarial assistance in completing this booklet and S.Selvakumaran, Librarian for providing literature and sketch maps. I am sure the catalogue will be useful to readers and researchers alike in appreciating the vast and copious Paleolithic sites near Gudiyam cave at Poondi.

17.03.2011

Chennai-8.

T. S. Sridhar

(T.S.Sridhar)

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PREFACE

India is having a rich cultural heritage. It is the duty of every citizen to protect and conserve and leave the heritage properties for the future generation. India's long history left out many heritage and cultural impacts by way of architectural, heritage properties. In the Constitution of India it is defined in Article 51 A as the Fundamental Duties IV A, that 'every Indian citizen should, uphold the constitutional duty, should value and preserve the rich heritage of our composite culture and protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures. The Directive Principles of the State Policy, Part IV of the Indian Constitution also states that, "it shall be the obligation of the state to protect every monument or place or object of artistic or historic interest declared by law to be of national importance from spoliation, disfigurement destruction, removal, disposal or export as the case may be," it is felt that it is the duty of every citizen to preserve the cultural and natural properties.

Having this in mind instead of class room reading, the students can visit a historical buildings, a national park, a museum or a traditional performing artist. This will enhances the student's learning experience, observation skills and encourage a sense of appreciation of our diverse cultural legacy.

Before the visit to a place, museum, national park or a traditional performing artist the students has to do the following things:

- Know the place
- Collect data's
- Create a database
- Route map

I feel that this book will serve the purpose of the above listed factor's and will be appreciated by the common readers who wants topeep into the Pre-Historic archaeology of Tamil Nadu.

This book is aimed to create awareness among youngsters about the Pre- Historic period in general, particularly cataloguing the tools collected by our department during the exploration and excavations in and around Thiruvallur district. I feel it will kindle the interest among the students and they will definitely explore and dig the past history of Tamil Nadu in future.

S. Vasanthi

(S.Vasanthi)

I. INTRODUCTION

The early men who evolved from primates lived in jungle and were sheltered in natural caverns in Karst Topography region and caves in hills. They lived as nomads and ate raw fresh meat as they were unaware of firing technique. Prehistoric men used natural hard rocks available in their habitation for making sharp implements which varied in shape and size and used it for hunting animals. The technique of hafting was not known to them. Hence, they handled the crude stone implements with hand. The remains of human cranial bones, jaws with teeth and bones of other parts have been recorded from various places of the world. The finding of tools and traces of human existence have been noticed from Europe and other countries which witnessed glacial period and presence of natural caves and caverns which provided shelter for early men to live. However, we do not find good number of bone remains of early men in India due to absence of natural shelter.

Early history has been categorized on the basis of type of tools and rock type used for making implements into three periods.

1. Palaeolithic – Men as nomads lived in natural caves and caverns located in dense forest and hunted animals with crude implements made out of rocks, particularly Quartzite.

Old Stone Age, representing the first and by far the longest period of man's existence, from the first tool-makers 2.5 million years ago to the end of the Pleistocene geological period c 10,000 years ago. The c10,000 years ago. The Palaeolithic was originally defined by the use of chipped stone tool, but later an Economic criterion was added and the

practice of hunting and gathering game is now regarded as a defining characteristic. The term is used throughout the old world.

Abbevllian

Palaeolithic tools are of two types in technique namely Abbevillian and Acheulian commonly classified by the prehistoric archaeologist. Abbevillian one of the key localities where it was first shown that man was of great antiquity.

From 1836 onwards BOUCHER DE PERTHES found stone tools in the gravel pits here, and a succession of scholars, especially from England, recognized the significance of these discoveries around 1859. Subsequently, these pits in Northern France became one of the richest sources of PALAEOLITHIC tools, especially hand axes, in Europe. In 1939 Abbe' BREUIL proposed the name Abbevillian for both the type of crude hand axes found here and a whole early phase of hand-axe manufacture preceding the ACHEULIAN in Europe.

Acheulian

The term Epoque de St. Acheul was introduced by de MORTILLET in 1872 for a span of prehistoric time, early part of the PALAEOLITHIC period. This usage is still occasionally found today but after 1925 the idea of epochs began to be supplanted by that of cultures and culture traditions, and it is in this sense that the term Acheulian is more often used today. However, prehistorians are far from unanimous on this question, some still not accepting the usefulness of the notion of tradition or cultures. St.Acheul , on the bank of river Somme in France is type locality at which number of distinctive early Palaeolithic handaxes were found.

These axes characteristically are large bifacially flaked, ovoid stone tools are widely assumed to have manufactured mostly by Homoerectus.

The Acheulian is characterized according to most pre-historians by the HAND AXE. In the wider sense now most commonly used, the Acheulian first appeared over a million years ago in Africa, and the earliest assemblages are often rather similar to the OLDOWAN at such sites as OLDUVAI GORGE. Subsequently hand-axe assemblages are found over most of Africa, southern Asia and Western and Southern Europe. The earliest appearance of hand axes in Europe is still referred to by some workers as ABBEVILLIAN, denoting a stage when hand axes were still made with crude, irregular edges.2. Mesolithic - Men lived on the banks of river, lake or other water bodies and took fishing as their main occupation. Mostly tools are micro in size and made out of Chert, Flint and other cryptocrystalline quartz varieties. Mostly they used these stones for making blades.

These cryptocrystalline varieties of Quartz occur as nodules in Limestone region (Karst Topography). Mesolithic period sites are concentrated in Southern districts of Tamil Nadu, especially in Teri sites (near Thiruchendur) of Tuticorin district.

3. Neolithic - Men lived on plains and agriculture was their main occupation. They used polished stones of Basalt, Dolerite and other volcanic rock types for their purposes. The Neolithic sites are located in Salem and Dharmapuri district of Tamil Nadu.

Palaeolithic period in India

Palaeolithic period sites in India are mostly concentrated in Siwalik Hills in Northern India and in South India near Poondi reservoir (62 km from Chennai), Tiruvallur District of Tamil Nadu. More than 60 sites have been noticed by various Archaeologists and Geologists since 1863 when R.B.Foote, British Geologist found a first Palaeolithic tool from a ballist pit at Pallavaram near Chennai. The type of tools found in Tamil Nadu is called as 'Madras Handaxe Industry' and tools are Acheulian technique compare to Abbevillian technique tools from 'Soan Valley Industry' in Northern India. The hill ranges along the Soan river, an important stream of the Pothohar region of Pakistan, is one of the world famous Paleolithic site region. The stone implements and fossil remains found here provide evidence of existence of human life in Pakistan between 1, 00,000 and 150,000 years ago. The river Soan has been identified with the 'Sushoma' river of the Rig Veda. According to Bhagavatam, the Sushoma is one of the many transcendental rivers flowing through the land of Bharata (India).

The type area of Madras Hand-Axe Industry is Attirampakkam. Good number of Palaeolithic tools is obtained from a nulla, locally known as 'Budhitha Mannu Vanka' of Kortalliyar river (In Tamil- Kusasthalai Aru). Gudiyam, another important site where we locate early men cave 'Manathachamman Koil'. It can be reached from Gudiyam village through narrow path of shrub jungle after trekking nearly 7 kms. Excavation at this site by the Archaeological Survey of India has thrown light on the frequent usage of this cave by early men as their shelter. H.D.Shankalia, K.D.Benerjee, V.D.Krishnamachari are some of the Indian scholar pioneers in Pre-history.

GEOLOGICAL FORMATION AT POONDI REGION

The shapes of the tools are varying according to usage and purpose and are as follows:

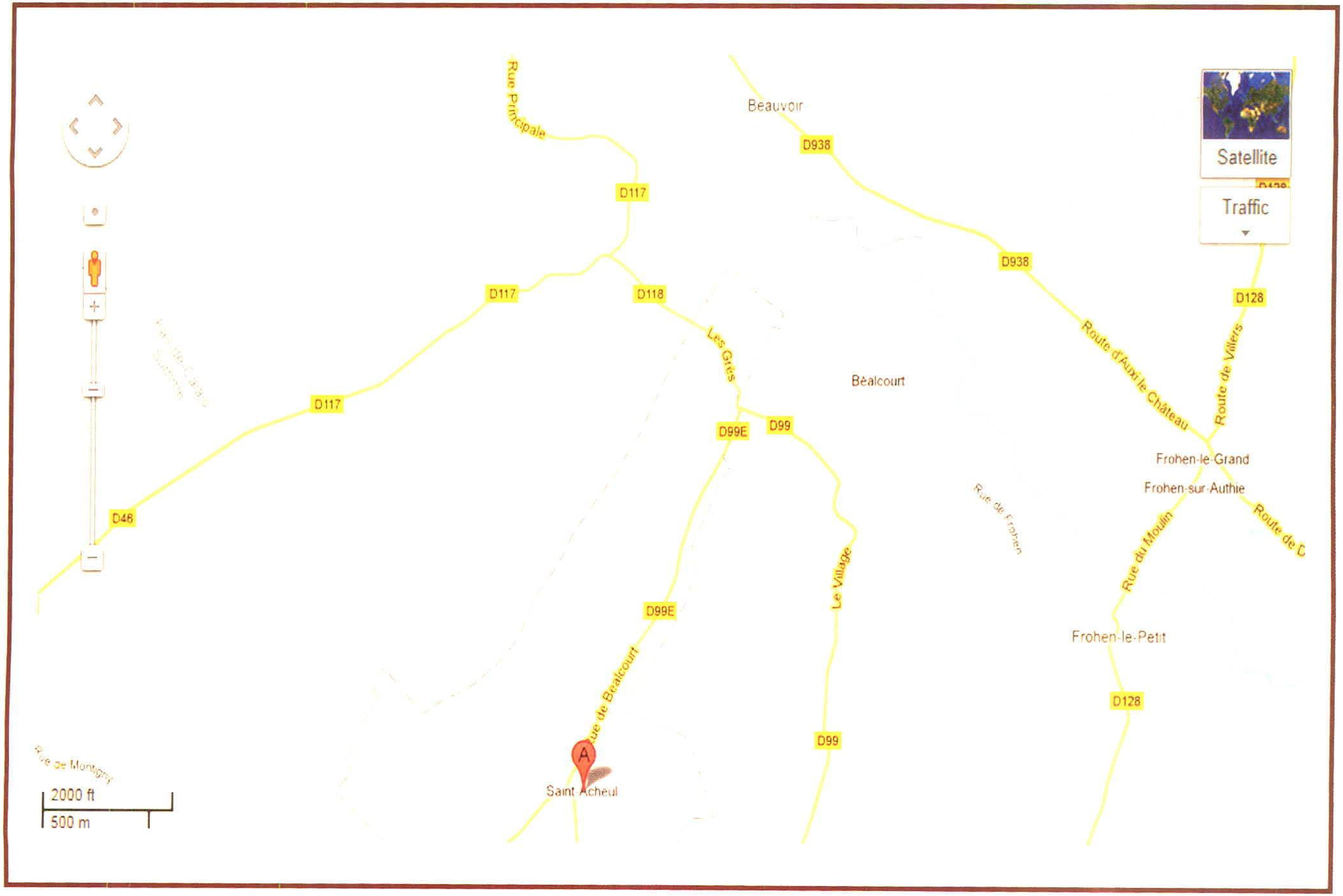
1.Hand – axe 2. Scrapper

3. Discoid 4. Chopper and 5. Flake Tools

The collections of Palaeolithic tools described in this catalogue are from poondi museum and surface collection during 2005 ahead of excavation at Parikulam in Tiruvallur district. Totally sixty nine tools are mentioned with requisite details. The occurrences of quartzite conglomerates are the key factor to identify Paleolithic sites. In Tamil Nadu, Quartzite conglomerates are noticed in Gondwana formations which occur near Sriperumbudur (Kanchipuram District), Satyavedu (Tiruvallur District), Trichy District and Sivaganga (Ramanathapuram District).

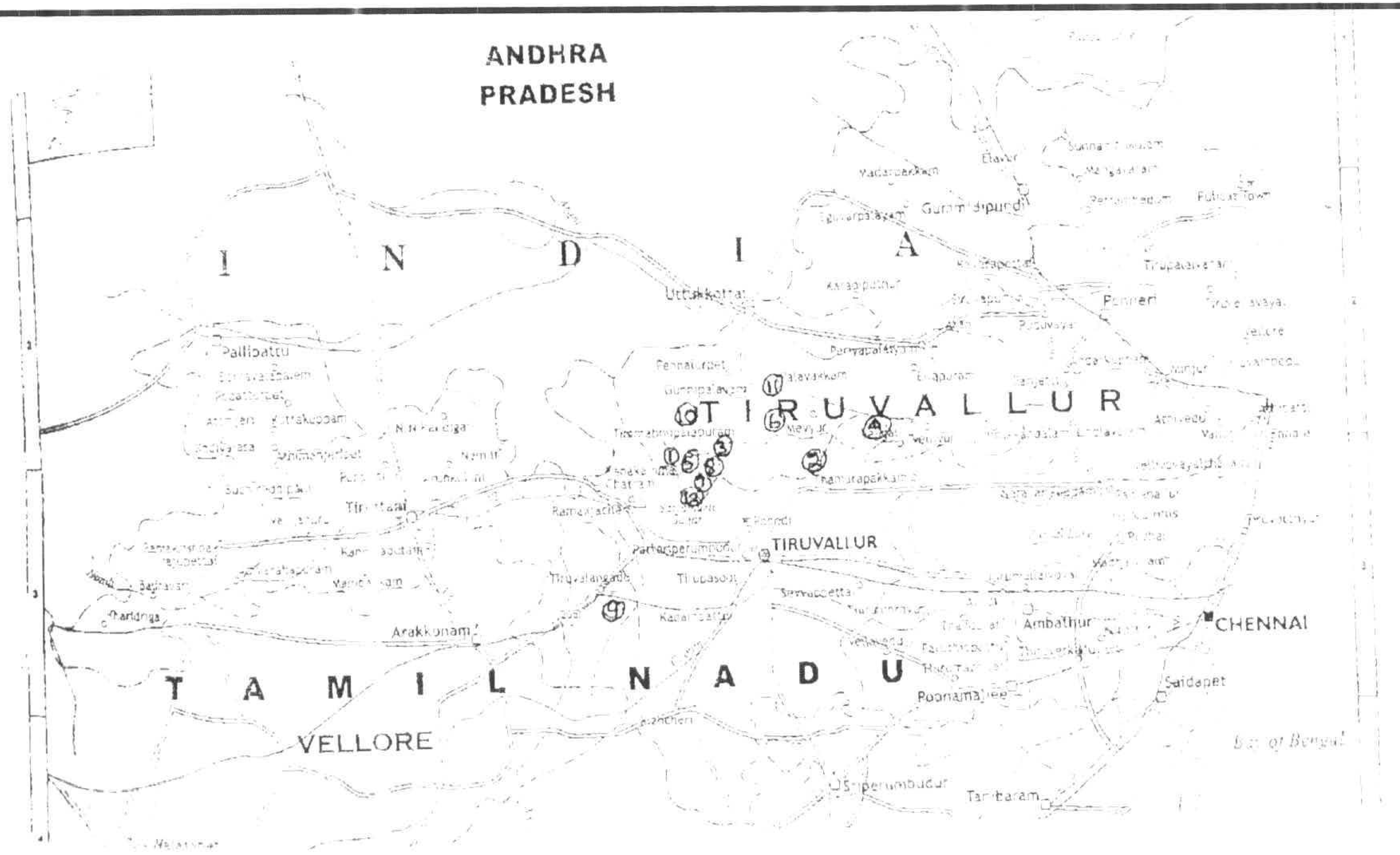
The Indian Lower Palaeolithic period has been divided into two 'industrial or cultural traditions':-

1. the Soanian industry and the Acheulian or 'Madrasian' industry named after the first find place. Soanian industries, found over parts of Pakistan and Northwest India, are dominated by pebble or core tools and are predominantly used as chopper/chopping tools. The Acheulian type of tools found in other Pre-historic sites identified in rest of India. They are characterized by bifacially flaked artefacts such as hand axes and cleavers, along with denticulate, scrapers, spheroids and picks. Apart from the above said sites the Narmada Valley site in India is also known for both a Cretaceous period fossil prehistory, as well as the discovery of an isolated cranium of an archaic Homo Sapiens, from its surroundings dated about .2 to .7 million years ago, making it the earliest known hominid find from the Indian subcontinent.

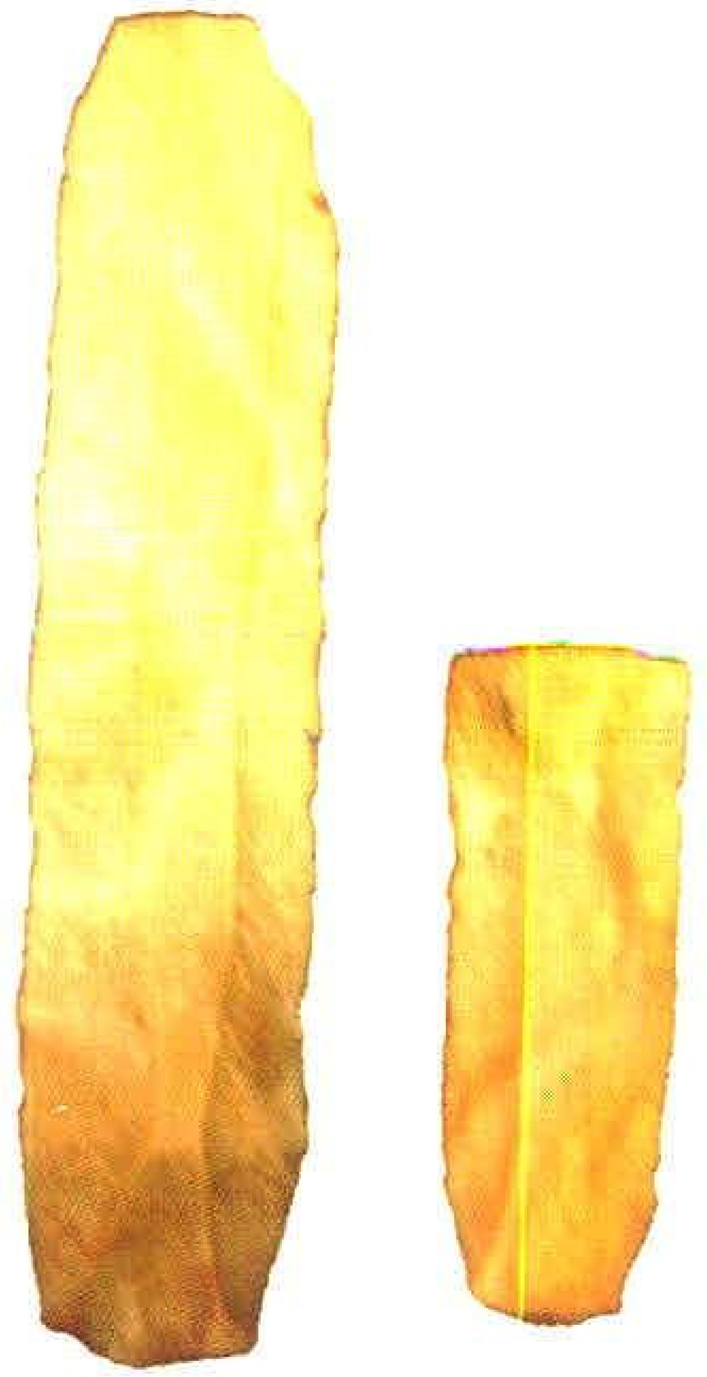


SAINT - ACHEUL MAP

LOCATION OF FEW PALAEOLITHIC SITES
DISTRICT OF TIRUVALLUR, TAMILNADU

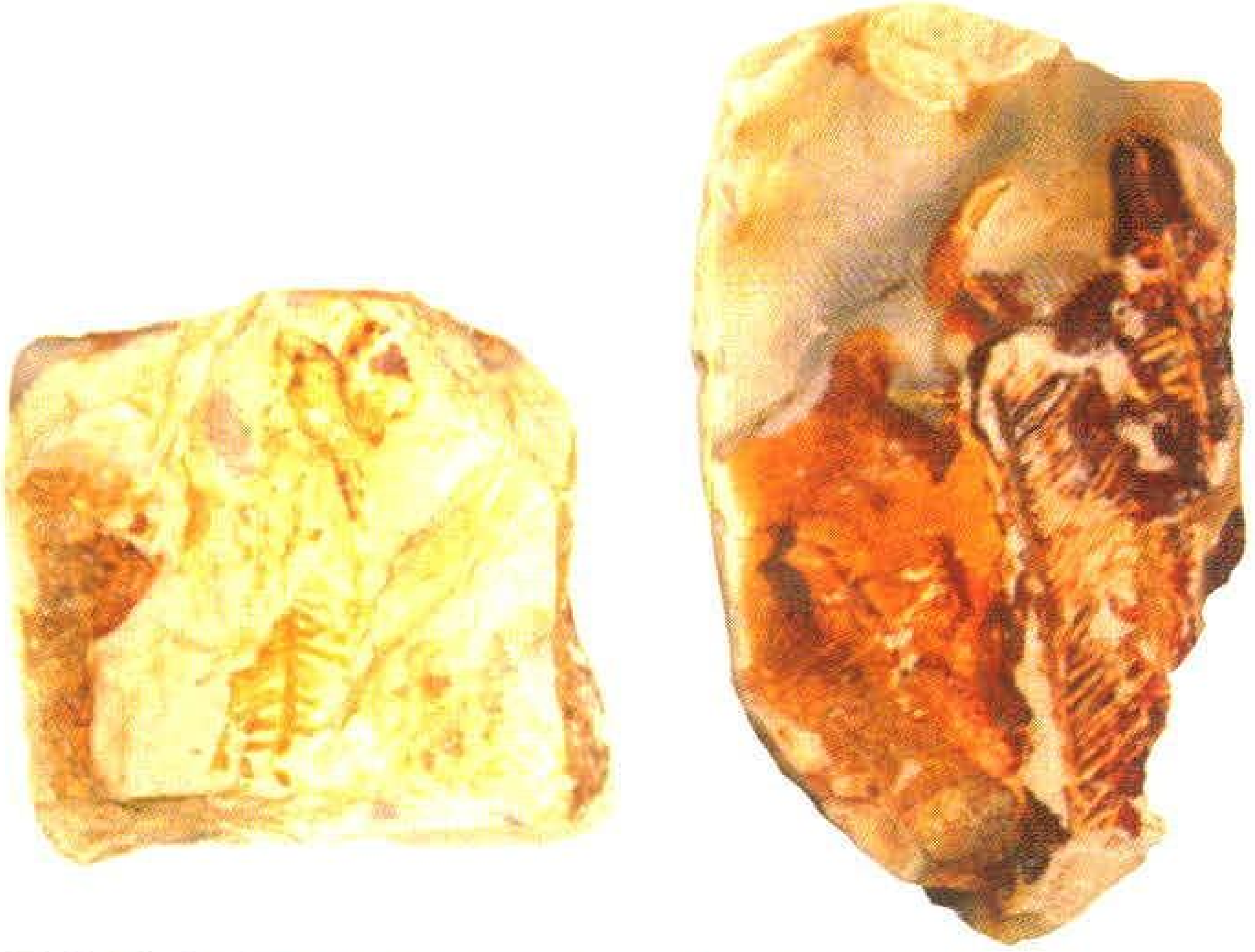


1. AYR - Ariyattur
2. APM - Arumpakkam
3. ATPM - Attirampakkam
4. VDMI - Vadamadurai
5. NPM - Nampakkam
6. MLPR - Mailapur
7. RVM-Rangavaram
8. KPM - Krishnapuram
9. MVR-Manavur
10. GDM - Gudiyam
11. KTCR - Katchchur
12. PRKM-Parikulam



MICROLITHIC TOOLS

NEOLITHIC TOOLS



LEAF IMPRESSION (LEAF FOSSIL IN GONDWANA SHALE)
FROM GUNDUPERUMBUDUR (NEAR SRIPERUMBUDUR)

II. GEOLOGY

The early men, who lived in natural rock shelter for protection and wandered in the neighbourhood area in search of food, had a good interaction with nature. On account of this, he was in a position to select suitable hard rock to make implements for hunting animals. The thought of early men were uniform in entire world and their physical features, complexion and food habits varied due to environments climatic condition. Paleolithic men were unaware of firing technique and had no knowledge on hafting tools for hunting. With the passing geological years and unsuitable climatic condition and finding of flint stone, he was able to discover fire. The rough stone implements left by the ancestors infer that early Paleolithic men were strong and well built.

Geology of the area around Poondi reservoir is complex in nature. The occurrences of small patches of Gondwana formation and overlain by Cuddalore formation are noticed here. The Pleistocene boulder Conglomerate and Laterite beds are also encountered in this region. The Upper Gondwana formationis found exposed near Satyavedu (close to Poondi and Parikulam). It consists of mottled ferruginous Sand stone and Conglomerate. Besides this, Laterite beds of Pleistocene period are also exposed in and around Poondi and Allikuli Hills of Tiruvallur District.

The concentration of Palaeolithic sites are more confined to geological formation where boulder of quartzite rocks occur. The term boulder, cobble and pebble refer the sizes of detrital rock of quartzite. Quartzite is a metamorphic rock of Sand stone and constitutes 95% of quartz mineral which are abundantly available and has hardness of 7 in Mohr's scale of Hardness. Hardness is nothing but the resistance of a rock against the action of natural agents like running water and wind. Hence, tools made out of these rocks have survived for longer geological period. Likewise, concentration of Microlithic

sites is located close to area where cryptocrystalline quartz varieties like Chert, Flint and Jasper encountered. These varieties occur as nodules in Karst Topography (Lime Stone region). On account of characteristic features of taking sharp edges while breaking and hardness 7, they were so suitable for making blades during Mesolithic period.

The Paleolithic tools found in and around Poondi area, Tiruvallur district are made of quartzite rocks which are abundantly available in the Allikuli Hill ranges. These rocks are encountered in the form of boulders and pebbles and found scattered along the Kortallaiyar river. It is believed that these tools were used for hunting smaller animals like rabbit, fox and rat which live in thorny and shrub jungle. More so, most of the tools collected from exploration and excavation does not show any traces of usage.

Application of scientific methods like remote sensing will certainly help us to collect more datas on the geological formation, particularly Quartzite rock and find possible route of migration by early men, if any. Geological study on climatic condition, ethnographical analysis and on river terraces will be an asset for the Archaeologists to understand Prehistory. Such research works to be carried out with the co-ordination of experts in these fields, without the assistance of Geologist it is not possible to carry out any archaeological study, particularly in the field of Pre-history.

III. EXCAVATION AT PRE-HISTORIC SITES

EXPLORATION

In month of September 1863 Robert Bruce Foote the British Geologist discovered a Palaeolithic stone tool at Pallavaram (present Chennai Metropolitan) in the then Madras presidency in Tamil Nadu. Later on he found abundant tools at Attirampakkam.

The site Attirampakkam (Attirambakkam or Attrampakkam) situated in the northern bank of the river Kortallayar between (13° 50' N and 79° 20' E).situated at Tiruvallur taluk of same district. The Palaeolithic tools and assemblages are found in abundant and embeddged in the nearby river gully which is locally known as Budida manu venka. The Palaeolithic artifacts are distributed over an area of 50,000 sq.m and the Palaeolithic humans lived close to river valleys with forest environments.

After the discovery of tools by Foot, the systematic study and survey of the Palaeolithic tools was stated in the year 1930's and was in progress until 1960. Survey of this area was under taken in the second phase, which had been known as the establishment of the Grand Sequence. The scholars identified four terrace in the Kortallayar basin namely, TD, T3 at elevation of 100' (30m) 60'(18 m) 20' (6m) and 8' (2m) was a extension of the four fold terraces of the Soan valley in North India. Terraces were either due to gradation or erosion caused by river flow. By studying these terraces the scholars were able to associate them with definite layers, climatic changes that were evolving culture sequence ranging from the Abbevillio-Achelian to the upper Palaeolithic period. They defined Attirampakkam terrace as T2:20'. This is described as an aggradtional terrace with thicker gravels and covered by silts and sands well developed 20' (6m)above the flood plain and around the village of Attirampakkam, Nambakkam 8 miles (12.8km) northwest of Tiruvallur on the right bank of the Allikulli gully opposite to Krihnapuram and around Poondi and Erumaivettipalayam.

The intervals between T1 and T2 is interpreted as a period of erosion and aridity followed by deposition of coarse gravel on T2 pointing to a definite resumption of increased pluvial conditions. V.D.Krishnaswamy identified Attirampakkam industry with that of Nanjukian and Fauresmith cultures showing contacts of core and flake traditions. In the Third phase Dr.K.D.Banerjee of the Archaeoelogical Survey of India conducted excavation at Attirampakkam, Gudiyam, Vadamadurai, Poondi and Neyvelli (1957-1979)

Excavation was conducted by K.D Banerjee of Archaeological Survey of India in the years 1962-63, 1963-64 1964-65, 1966-67) at Gudiyum, Attirampakkam, Vadamadurai, Poondi and Neyvelli. He hypothesized that tools on the surface of the shale could have been derived from the overlying horizons at Attirampakkam.

Excavation at Attiramapakkam: by Dr. Shanthi pappu (1999-2003)

Site Stratigraphy and Taphonomy

- Total number of artifacts collected was 436. The total number of tools exposed on the surface could easily exceed 8,000 artefacts and is the highest in the study area
- The dimension of all artifacts is 62x52x20 mm. Most of the tools fall within the size range of 20-40 mm and 40 -80 mm. A smaller number of artifacts fall within the 80-160 mm and 160-320 mm size range.
- Attirampakkam with a total deposit of around 9 m in thickness. It has yielded evidences of Lower and Middle Palaeolithic industries. A total of 6 distinct layers could be identified :
- The discovery of three fossil teeth is significant, as fossils are rare at Indian Lower and Middle Palaeolithic sites. These include an upper molar of Bovini possibly representing Bubalus (water buffalo) or Bos; a lower molar of Equus sp. And a left lower molar, Caprinae or Boselaphini (Boselaphus; nilgai) these indicate at least three different fossil species suggestive of an open and wet landscape.

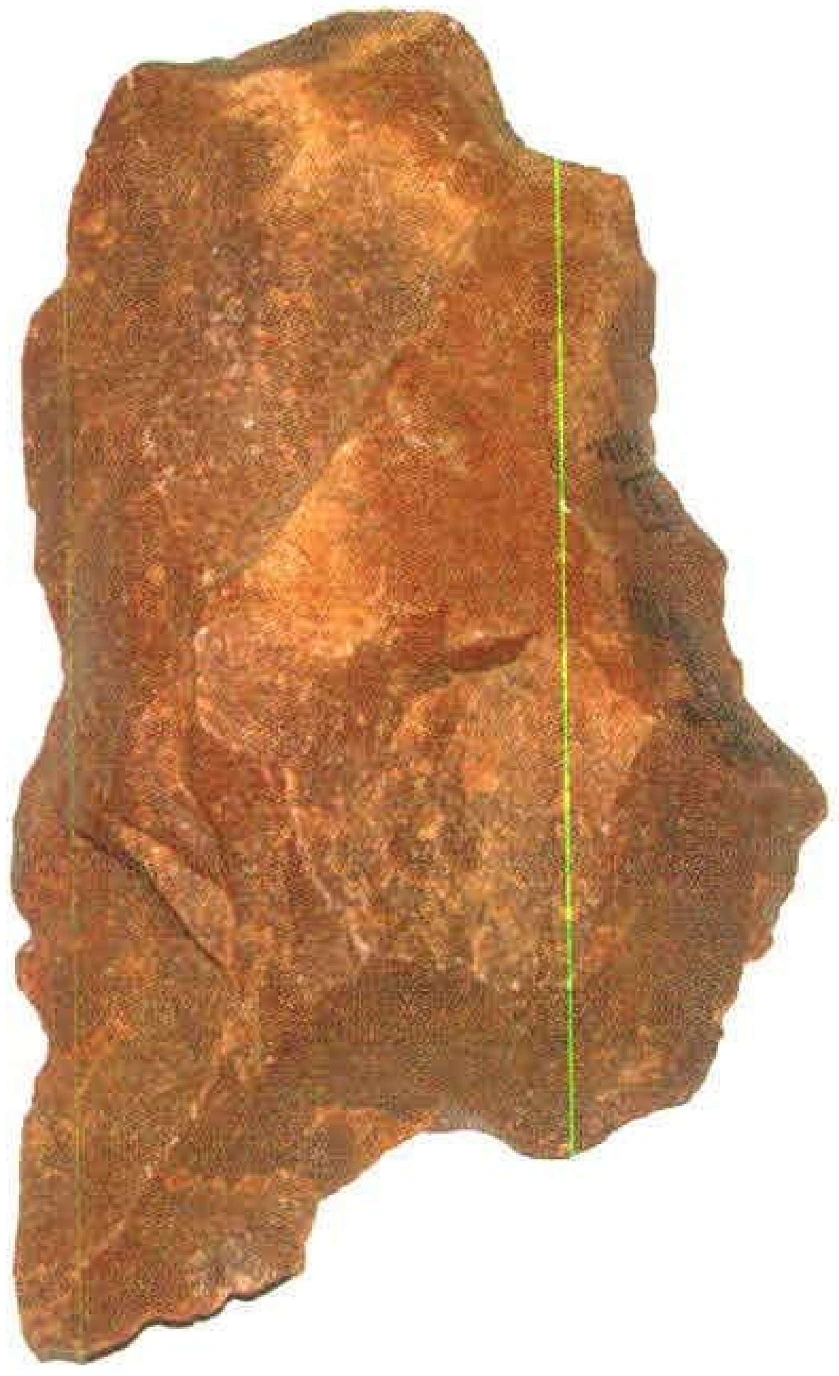
Attirampakkam is unique in providing an opportunity to study transitions through time and changing hominid adaptive strategies over the Pleistocene, with assemblages preserved in stratified deposits. In Tamil Nadu, date of Pre-historic period has been assigned to the period between 500,000 BCE to 3000 BCE.

PARIKULAM

Parikulam (Lat: 13° 13' N, Long: 79° 51' E) is located at 4km from Poondi reservoir in Tiruvallur taluk of Tiruvallur district. Exploration conducted in and around this village yielded good number of tools and wood fossil from Mettupalayam, a nearby village. When a channel was day for Krishna water project, the site was brought to the notice and was explored by the archaeologist of this department. Based on this, a systematic excavation was carried out by the excavation wing of Tamilnadu State Department of Archaeology in the year 2005-06. It is the first Paleolithic site excavated by this department. Excavation at Parikulam has revealed four stratigraphical layers and yielded varied type of tools which exposed all three Paleolithic periods such as Lower, Middle and Upper Paleolithic Cultures. The unearthed stone tools include Hand-axes, Hammers, Cleavers, Scrappers, Discoids, Lunates, Blades and Borers. On account of rich yield of variety of tools from a single site, it can be ascertained that Parikulam might have been a factory site.

Excavation revealed that this place was continuously occupied by hominids from early Paleolithic till late Paleolithic period. The occurrences of large number of chips and flakes confirm the existence of an Acheulian tool making industry in this place.

Excavation was carried out by a team of Archaeologists which include Messrs. D.Thulasiraman, S.Selvaraj, V.Ramamurthy and S.Sreekumar under the guidance of Thiru.T.S.Sridhar IAS, Special Commissioner of Archaeology. The important Paleolithic tools that were unearthed from the excavation trenches are listed here.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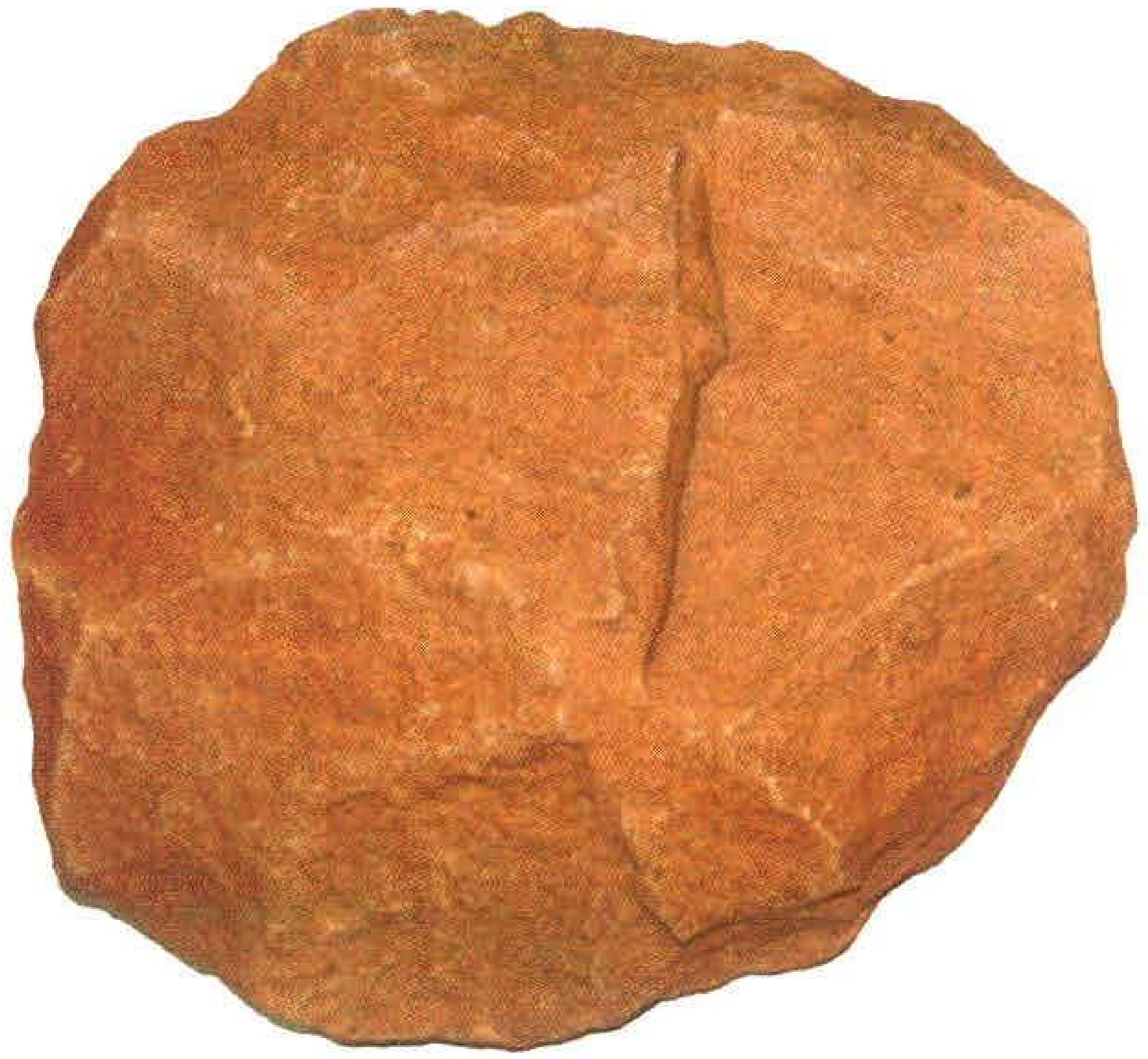
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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
07.	Site: PRKM Location: Excavation site Object: Scrapper	Parikulam Tiruvallur/ Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Scrapper Quartzite	L-91.81 mm B-72.23mm T-21.48 mm W-162 gm	Scrapper Late Palaeolithic
08.	Site: PRKM Location: Excavation site Object: Blade	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Blade Quartzite	L-61.72 mm B-42.22 mm T-16.08 mm W- 47gm	Blade Late Palaeolithic
09.	Site: PRKM Location: Excavation site Object: Borer	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Borer Quartzite	L-64.45 mm B-59.37 mm T-17.31mm W- 68 gm	Borer Late Palaeolithic

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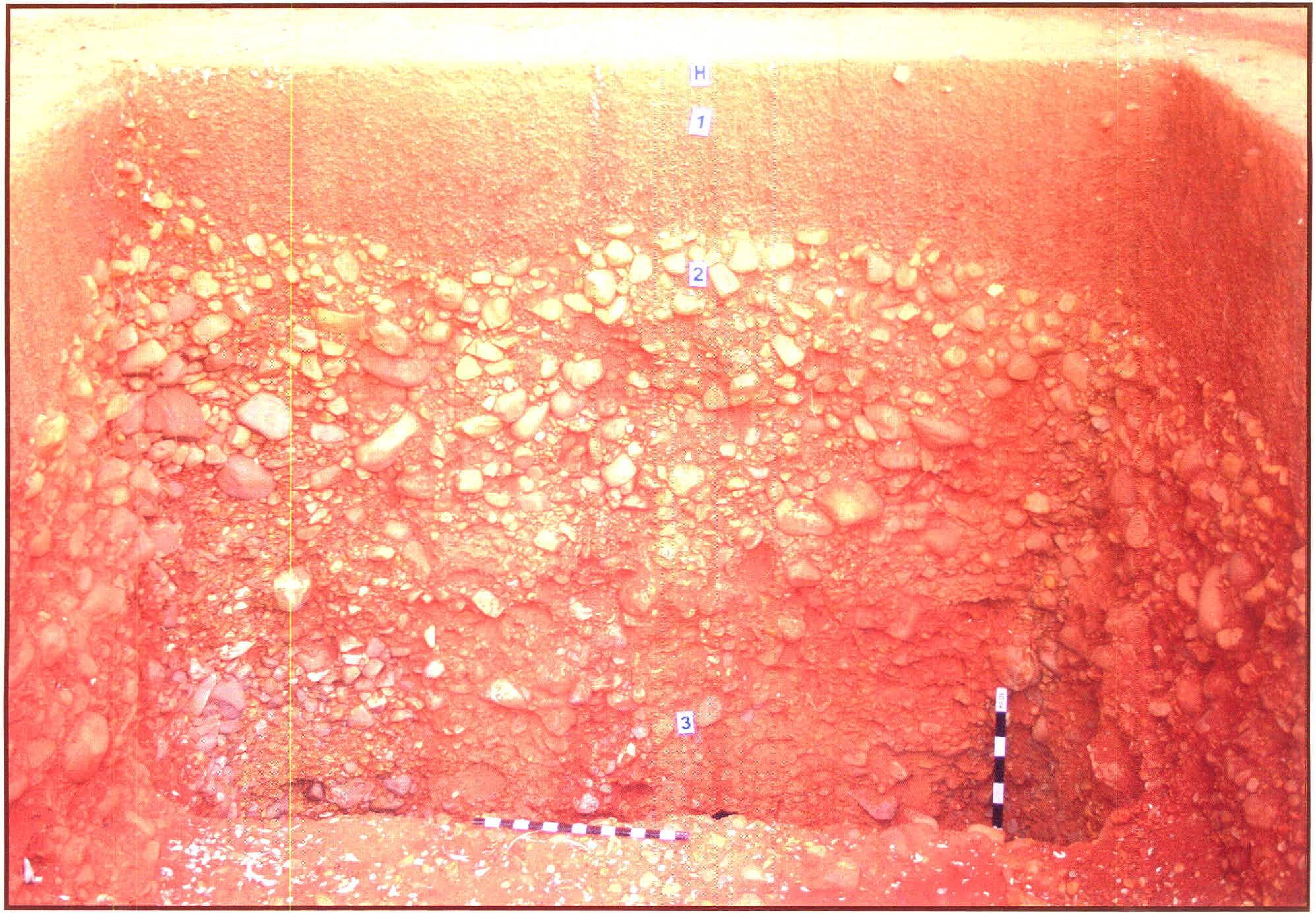
EXCAVATION - ATTIRAMPAKKAM



PARIKULAM - EXPOSED TRENCH

IMPORTANT PALEOLITHIC TOOLS FROM PARIKULAM EXCAVATION

S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
01.	Site: PRKM Location: Excavation site Object: Hand-axe	Parikulam Tiruvallur/ Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Hand-axe Quartzite	L-238.25 mm B-119.13mm T-63.67 mm W-1.251k gm	Hand-axe Lower Palaeolithic
02.	Site: PRKM Location: Excavation site Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Hand-axe Quartzite	L-148.46 mm B-111.55 mm T-45.97 mm W-697k gm	Hand-axe Middle Palaeolithic
03.	Site: PRKM Location: Excavation site Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Hand-axe Quartzite	L-174.84 mm B-97.38 mm T-38.06mm W-687k gm	Hand-axe Middle Palaeolithic

1 2 3

S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
04.	Site: PRKM Location: Excavation site Object: Cleaver	Parikulam Tiruvallur/ Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Cleaver Quartzite	L-207.86 mm B-114.67mm T-54.47 mm W-1.169kgm	Cleaver Middle Palaeolithic
05.	Site: PRKM Location: Excavation site Object:Discoid	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Discoid Quartzite	L-168.48 mm B-162.46 mm T-35.16 mm W-1.177kgm	Discoid Middle Palaeolithic
06.	Site: PRKM Location: Excavation site Object: Hammer	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	Team of Archaeologists Excavation conducted in the year 2005	Hammer Quartzite	L-246.26 mm B-76.68 mm T-40.06mm W-1.745kgm	Hammer Middle Palaeolithic

IV. PALAEOLITHIC TOOLS – MADRAS HAND-AXE

Palaeolithic tools are abundantly available in the region close to Poondi dam (Sathyamoorthy reservoir) in Tiruvallur District of Tamilnadu State. It attracts large number of researchers from native as well as foreign countries in the field of Pre-history. for their research purpose. Besides this, students in this field are brought for field trip to have a better understanding of Prehistory and Geological environment of this region. For the benefit of scholars and general public a museum exclusively for Prehistory has been functioning under the control Tamilnadu State Department o Archaeology, at Poondi village. It is interesting to note that this is the first kind of prehistoric museum in India.

Few Palaeolithic tools collected from exploration and excavations are listed and tabled in this chapter with requisite details. The general features observed among collections are as follows.

1. Palaeolithic tools are noticed with sinuous edges, formed due to chipping of flakes.
2. Shapes are convex and Plano-Convex in form. Rectangular form is also observed among collection.
3. Anterior end is mostly pointed, but some time it is blunt.
4. Posterior end is bulged for holding the Hand- Axe.
5. Sizes vary from small to larger dimension.
6. Workmanship is moderate to good.

LIST OF PALAEOLITHIC TOOLS

S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
1.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur/ Tiruvallur	13° 12' N 79° 52' E 33 MSL	Team of Archaeologists Surface Collection 2005	Hand-axe Quartzite	L-144.73 m B-75.70 mm T-58.92 mm W- 744 gm	Hand-axe It is a pebble tool and unfinished Lower Palaeolithic
2.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur Tiruvallur	13° 12' N 79° 52' E 33 MSL	Team of Archaeologists Surface Collection 2005	Hand-axe Quartzite	L-167.39 mm B-114.36 mm T- 49.78 mm W- 886 gm	Hand-axe It is a pebble tool and oval in shape Lower Palaeolithic
3.	Site: APM Location: Odai Object: Scrapper	Arumbakkam Tiruvallur Tiruvallur	13° 12' N 79° 52' E 33 MSL	Team of Archaeologists Surface Collection 2005	Scrapper Quartzite	L- 107.72 mm B-61.82 mm T- 26.20 mm W-206 gm	Scrapper It is convex in shape Lower Palaeolithic

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S.No.	Object Identification	Site Name Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
4.	Site: APM Location: Odai Object: Scrapper	Arumbakkam Tiruvallur/ Tiruvallur	13° 12' N 79° 52' E 33 MSL	Team of Archaeologists Surface Collection 2005	Scrapper Quartzite	L-121.90 mm B-67.74 mm T-19.36 mm W-172 gm	Scrapper Lower Palaeolithic
5.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	Team of Archaeologists Surface Collection 2005	Hand-axe Quartzite	L-72.98 mm B-52.49 mm T-27.27 mm W-106 gm	Hand-axe Lower Palaeolithic
6.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	Team of Archaeologists Surface Collection 2005	Hand-axe Quartzite	L-145.51 mm B-123.18 mm T-60.70mm W-1.219 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
7.	Site: AYR Location: Odai Object: Hand-axe	Ariyattur/ Tiruvallur/ Tiruvallur	13° 14' N 79° 51' E 52 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-103.91mm B-58.99mm T-30.35mm W-196 gm	Small Hand-axe with working edges Lower Palaeoithic
8.	Site: AYR Location: Odai Object: Hand-axe	Ariyattur/ Tiruvallur/ Tiruvallur	13° 14' N 79° 51' E 52 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-135.11 mm B-84.39 mm T-33.86 mm W-425 gm	Hand-Axe without working edges Lower Palaeolithic
9.	Site: VDMI Location: Odai Object: Hand-axe	Vadamadurai/ Tiruvallur/ Tiruvallur	13° 17' N 80° 02'E 35 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-120.98 mm B-79.42 mm T-40.48 mm W-368 gm	Hand-axe with workmanship Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
10.	Site: VDMI Location: Odai Object: Hand-axe	Vadamadurai/ Tiruvallur/ Tiruvallur	13° 17' N 80° 02' E 35 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-124.63 m B-78.78 mm T-50.41 mm W-544 gm	Hand-axe Lower Palaeolithic
11.	Site: NPM Location: Odai Object: Cleaver	Nambakkam Tiruvallur Tiruvallur	13° 14' N 79° 51' E 52 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Cleaver Quartzite	L-129.22 mm B-71.35 mm T-28.16 mm W-308 gm	Cleaver Lower Palaeolithic
12.	Site: NPM Location: Odai Object: Cleaver	Nambakkam Tiruvallur Tiruvallur	13° 14' N 79° 51' E 52 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Cleaver Quartzite	L-98.11 mm B-61.23 mm T-26.45 mm W-170 gm	Cleaver Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
13.	Site: NPM Location: Odai Object: Cleaver	Nambakkam Tiruvallur/ Tiruvallur	13° 14' N 79° 51' E 52 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Cleaver Quartzite	L-128.74 m B-103.19 mm T-30.71 mm W-472 gm	Cleaver Lower Palaeolithic
14.	Site: NPM Location: Odai Object: Hand-axe	Nambakkam Tiruvallur Tiruvallur	13° 14' N 79° 51' E 52 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-115.14 mm B-84.76 mm T-67.42 mm W-734 gm	Hand-axe Lower Palaeolithic
15.	Site: MLPR Location: Odai Object: Hand-axe	Mailapur Tiruvallur Tiruvallur	13° 17' N 79° 54' E 77 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-128.38 mm B-83.78 mm T-45.24 mm W-456 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of CollectionQ344	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
16.	Site: MLPR Location: Odai Object: Hand-axe	Mailapur Tiruvallur Tiruvallur	13° 17' N 79° 54' E 77 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-147.27 m B-100.84mm T-45.82 mm W-666 gm	Hand-axe Lower Palaeolithic
17.	Site: RVM Location: Odai Object: Hand-axe	Rangavaram Tiruvallur Tiruvallur	13° 11' N 79° 53' E 70 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-96.74 mm B-69.56 mm T-34.96 mm W-201 gm	Hand-axe Lower Palaeolithic
18.	Site: RVM Location: Odai Object: Hand-axe	Rangavaram Tiruvallur Tiruvallur	13° 11' N 79° 53' E 70 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-101.83 mm B-68.84mm T-35.16 mm W-228 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
19.	Site: KPM Location: Odai Object: Hand-axe	Krishnapuram Tiruvallur/ Tiruvallur	13° 17' N 79° 0' E 105 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-73.85 m B-53.08 mm T-24.20 mm W- 100 gm	Hand-axe Lower Palaeolithic
20.	Site: MVR Location: Odai Object: Hand-axe	Manavur Tiruvallur Tiruvallur	13° 18' N **79°** 20' E 56 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-108.15 mm B-96.11 mm T-60.66 mm W- 552 gm	Hand-axe Lower Palaeolithic
21.	Site: GDM Location: Odai Object: Hand-axe	Gudiyam Tiruvallur Tiruvallur	13° 16' N 79° 05' E 113 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-116.02 mm B-76.49 mm T-37.16 mm W-331 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
22.	Site: GDM Location: Odai Object: Hand-axe	Gudiyam Tiruvallur/ Tiruvallur	13° 16' N 79° 05' E 113 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-113.12 m B-87.88 mm T-30.57 mm W- 326 gm	Hand-axe Lower Palaeolithic
23.	Site: GDM Location: Odai Object: Hand-axe	Gudiyam Tiruvallur Tiruvallur	13° 16' N 79° 05' E 113 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-147.73 mm B-98.91 mm T- 48.11 mm W- 558 gm	Hand-axe Lower Palaeolithic
24.	Site: GDM Location: Odai Object: Hand-axe	Gudiyam Tiruvallur Tiruvallur	13° 16' N 79° 05' E 113 MSL	D.Thulasiraman Surface Collection 20053	Hand-axe Quartzite	L-116.02 mm B-76.49 mm T-37.16 mm W-364 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
25.	Site: KTCR Location: Odai Object: Hand-axe	Katchchur Tiruvallur/ Tiruvallur	13° 17' N 79° 54' E MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-125.90 m B-99.23mm T-60.13 mm W- 944gm	Hand-axe Lower Palaeolithic
26.	Site: KTCR Location: Odai Object: Hand-axe	Katchchur Tiruvallur Tiruvallur	13° 17' N 79° 54' E MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-137.85 mm B-86.56 mm T-45.47 mm W-559 gm	Hand-axe Lower Palaeolithic
27.	Site: KTCR Location: Odai Object: Hand-axe	Katchchur Tiruvallur Tiruvallur	13° 17' N 79° 54' E MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-120.49 mm B-73.41 mm T-47.91 mm W-380 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
28.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur/ Tiruvallur	13° 12' N 79° 52' E 33 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-189.69 mm B-99.44 mm T- 40.96 mm W- 848 gm	Hand-axe Lower Palaeolithic
29.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur Tiruvallur	13° 12' N 79° 52' E 33 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-173.58 mm B-104.31 mm T- 64.03 mm W- 1.075 gm	Hand-axe Lower Palaeolithic
30.	Site: APM Location: Odai Object: Scrapper	Arumbakkam Tiruvallur Tiruvallur	13° 12' N 79° 52' E 33 MSL	D.Thulasiraman Surface Collection 2003	Scrapper Quartzite	L- 109.14 mm B-87.50 mm T- 31.93 mm W-259 gm	Scrapper Lower Palaeolithic

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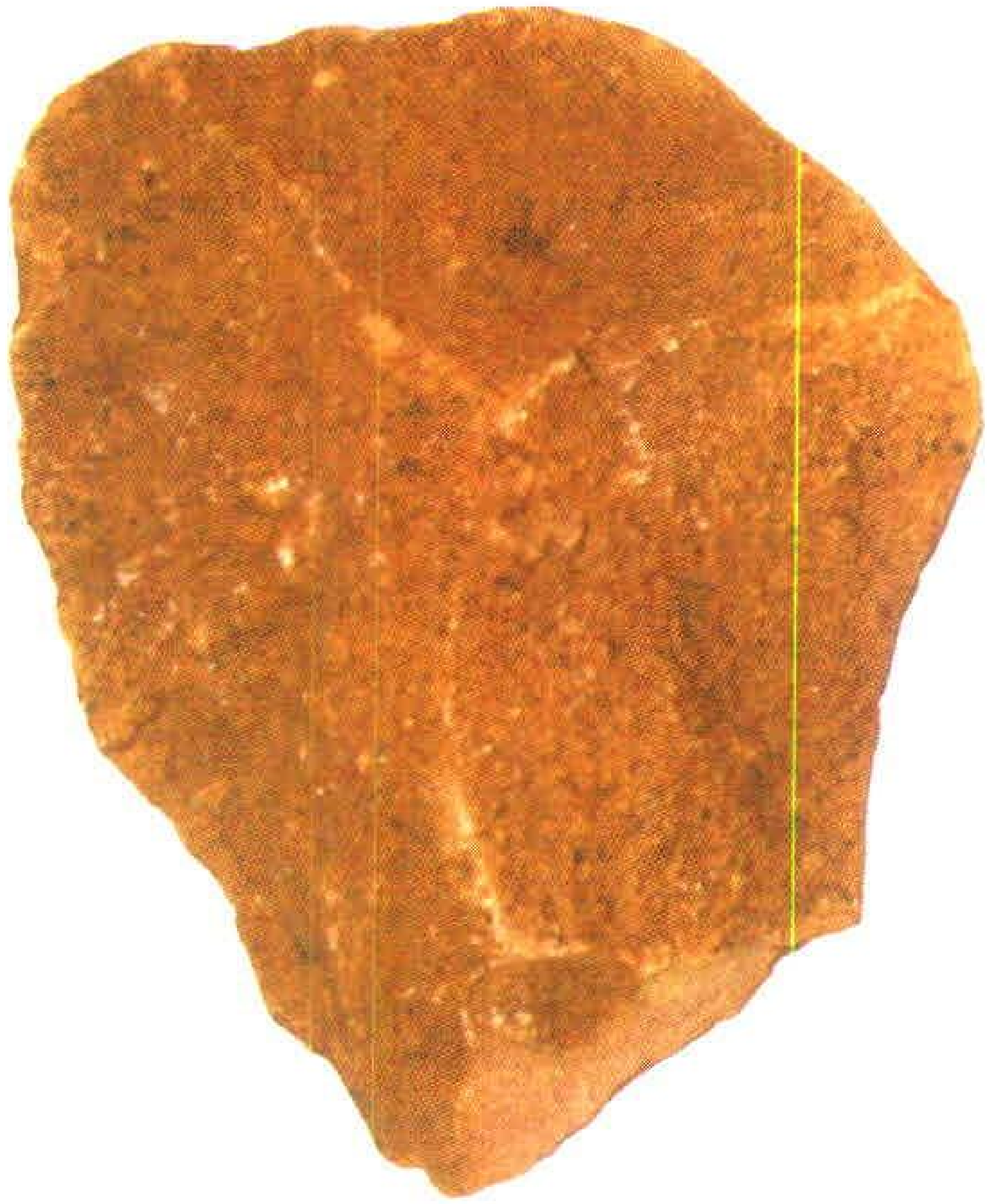
S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
31.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur/ Tiruvallur	13° 12' N 79° 52' E 33 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-112.58 mm B-95.60 mm T-28.41 mm W-305 gm	Hand-axe Lower Palaeolithic
32.	Site: APM Location: Odai Object: Scrapper	Arumbakkam Tiruvallur Tiruvallur	13° 12' N 79° 52' E 33 MSL	D.Thulasiraman Surface Collection 2003	Scrapper Quartzite	L-103.29 mm B-58.86 mm T-23.10 mm W- 143gm	Scrapper Lower Palaeolithic
33.	Site: APM Location: Odai Object: Hand-axe	Arumbakkam Tiruvallur Tiruvallur	13° 12' N 79° 52' E 33 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-126.31 mm B-87.24 mm T-37.21mm W-409 gm	Hand-axe Lower Palaeolithic



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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
34.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur/ Tiruvallur	13° 14' N 79° 54' E 33 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-94.38 m B-89.16 mm T-40.15 mm W- 326 gm	Hand-axe Lower Palaeolithic
35.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-124.24 mm B-91.38 mm T- 54.32 mm W- 509 gm	Hand-axe Lower Palaeolithic
36.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 54' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L- 120.70 mm B-103.41 mm T- 44.18 mm W-518 gm	Scrapper Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
37.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur/ Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	K.S.Sampath Surface Collection 2003	Hand-axe Quartzite	L-138.61 mm B-72.25 mm T-32.09mm W-342 gm	Hand-axe Lower Palaeolithic
38.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	K.S.Sampath Surface Collection 2003	Hand-axe Quartzite	L-131.73 mm B-78.15 mm T-50.62 mm W-473 gm	Hand-axe Lower Palaeolithic
39.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	K.S.Sampath Surface Collection 2003	Hand-axe Quartzite	L-138.40 mm B-91.38 mm T-54.32 mm W-559 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
40.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur/ Tiruvallur	13° 14' N 79° 54' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-131.71 m B-73.57 mm T-42.59 mm W- 356 gm	Hand-axe Lower Palaeolithic
41.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-106.31 mm B-55.02 mm T- 29.26 mm W- 175 gm	Hand-axe Lower Palaeolithic
42.	Site: ATPM Location: Odai Object: Scrapper	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Scrapper Quartzite	L- 109.32 mm B-75.49 mm T- 36.16 mm W-280 gm	Scrapper Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
43.	Site: ATPM Location: Odai Object: Scrapper	Attirampakkam Tiruvallur/ Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Scrapper Quartzite	L-118.05 mm B-68.58 mm T-22.35 mm W-193 gm	Scrapper Lower Palaeolithic
44.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-130.84 mm B-86.46 mm T-30.15 mm W-370 gm	Hand-axe Lower Palaeolithic
45.	Site: ATPM Location: Odai Object: Scrapper	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2005	Scrapper Quartzite	L-151.88 mm B-78.37 mm T-38.23mm W-530 gm	Scrapper Lower Palaeolithic

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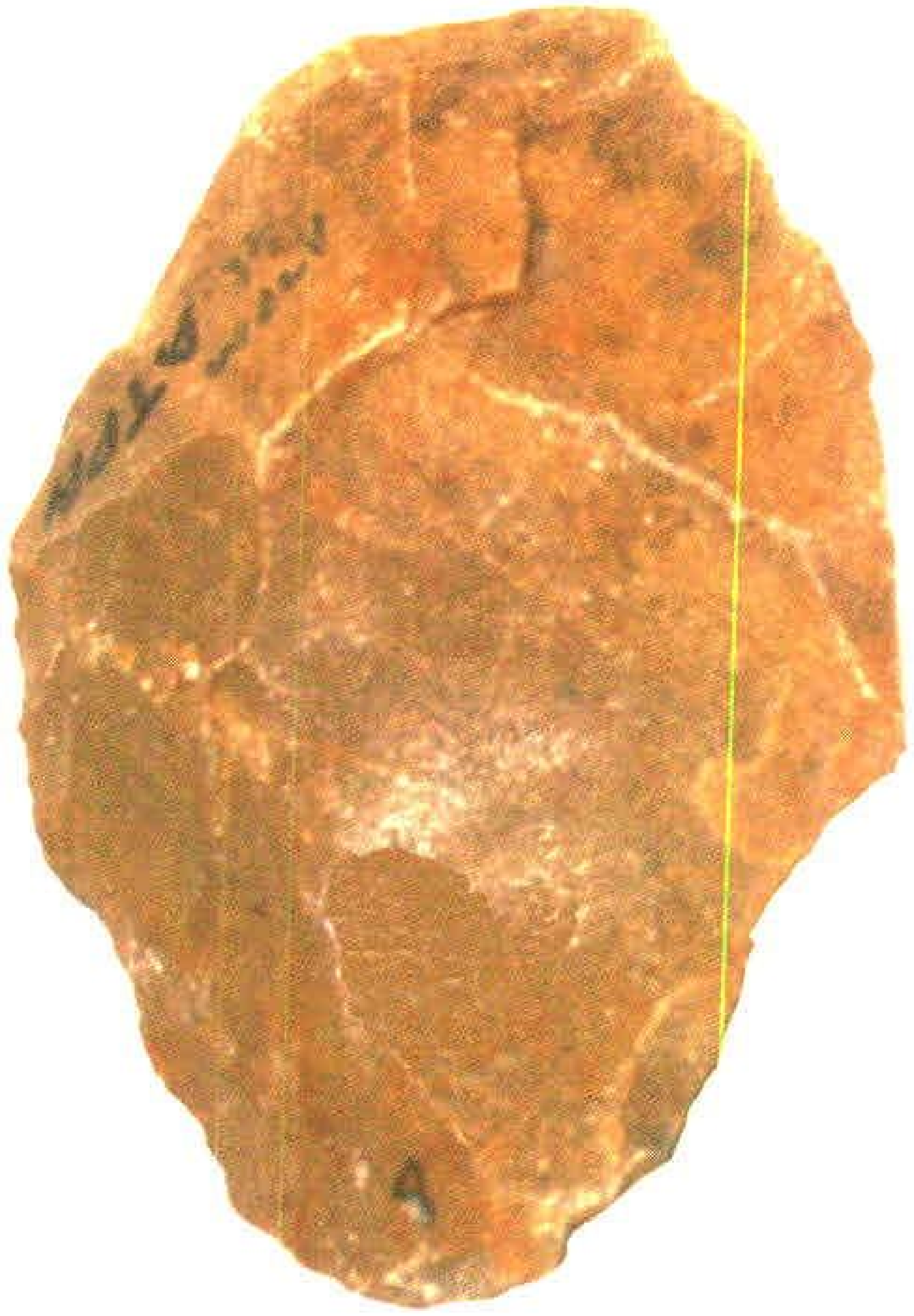
S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
46.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-106.88 mm B-81.47 mm T-37.15 mm W-288 gm	Hand-axe Lower Palaeolithic
47.	Site: ATPM Location: Odai Object: Hand-axe	Attirampakkam Tiruvallur Tiruvallur	13° 14' N 79° 53' E 33.65 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-133.56 mm B-85.73 mm T-40.98mm W-605 gm	Hand-axe Lower Palaeolithic
48.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-124.88 mm B-81.35 mm T-40.09mm W-357 gm	Hand-axe Lower Palaeolithic



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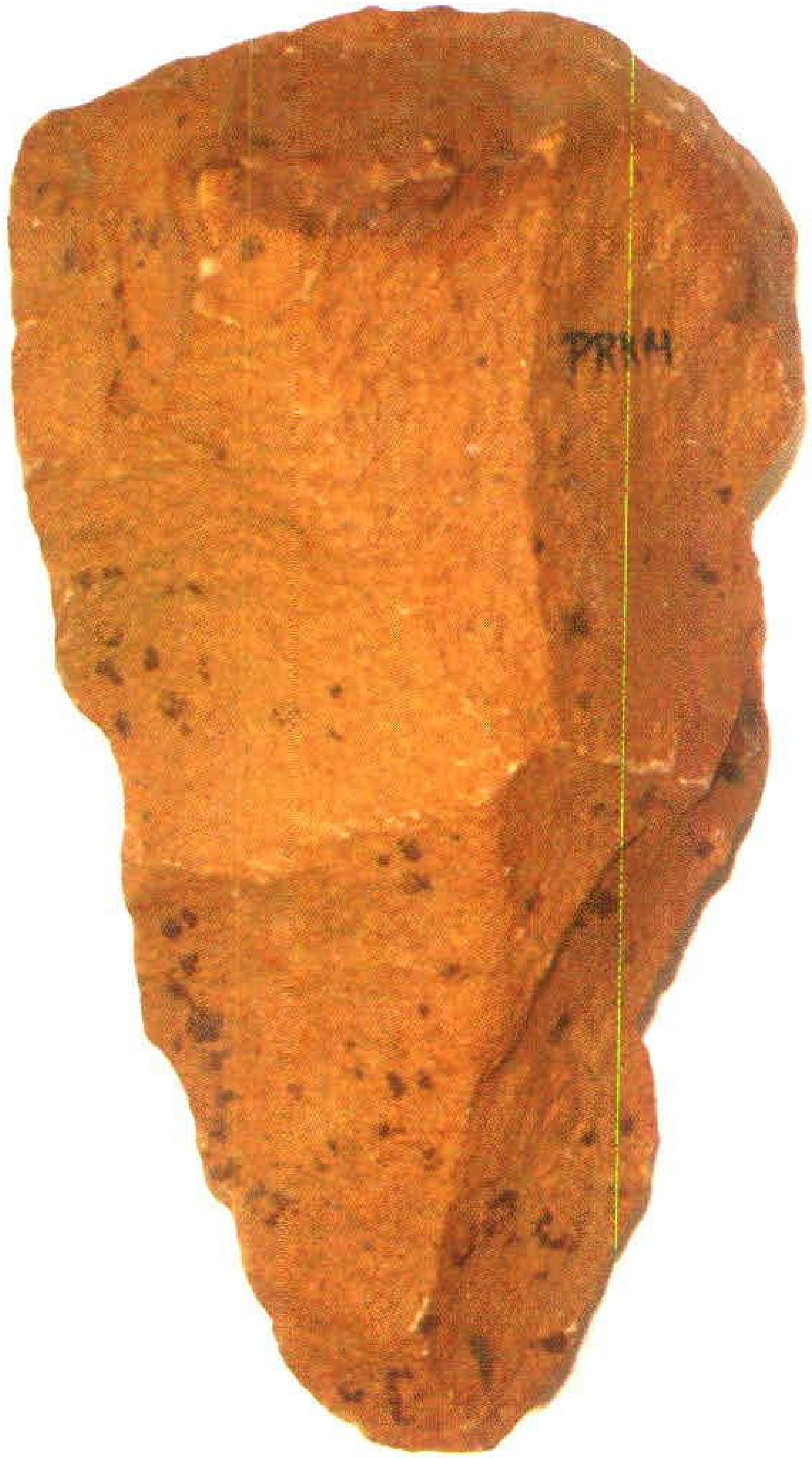
S.No.	Object Identification	Site Name Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
49.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur/ Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-199.19 mm B-106.12 mm T-76.635 mm W-1.610 gm	Hand-axe Lower Palaeolithic
50.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-120.48 mm B-60.11 mm T-33.96 mm W- 256gm	Hand-axe Lower Palaeolithic
51.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-169.57 mm B-97.64 mm T-43.05mm W-643 gm	Hand-axe Lower Palaeolithic



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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
52.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur/ Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman K.S.Sampath S.Sreekumar Surface Collection 2005	Hand-axe Quartzite	L-138.25 mm B-78.25 mm T-52.85 mm W-533 gm	Hand-axe Lower Palaeolithic
53.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 14' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-151.46 mm B-102.76 mm T-44.21 mm W-705 gm	Hand-axe Lower Palaeolithic
54.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-161.12 mm B-101.83 mm T-59.94mm W-1.004 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
55.	Site: PRKM Location: Odai Object: Scrapper	Parikulam Tiruvallur/ Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Scrapper Quartzite	L-148.05 mm B-88.43mm T-36.10 mm W-431gm	Scrapper Lower Palaeolithic
56.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-146.15 mm B-96.77 mm T-49.05 mm W-518 gm	Hand-axe Lower Palaeolithic
57.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-151.64 mm B-108.93 mm T-51.59mm W-876 gm	Hand-axe Lower Palaeolithic

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S.No.	Object Identification	Site Name/ Taluk/ District	Latitude/ Longitude/ Elevation	Name of the Collector/ Context of find/ Year of Collection	Type of Object/ Raw material	Measurement Length/ Breadth/ Thickness/ Weight	Short Description Period
58.	Site: PRKM Location: Odai Object: Scrapper	Parikulam Tiruvallur/ Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Scrapper Quartzite	L-145.05 mm B-65.43mm T-31.10 mm W-374 gm	Scrapper Lower Palaeolithic
59.	Site: PRKM Location: Odai Object: Hand-axe	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Hand-axe Quartzite	L-143.25 mm B-125.43 mm T-34.85 mm W-733 gm	Hand-axe Lower Palaeolithic
60.	Site: PRKM Location: Odai Object: Discoid	Parikulam Tiruvallur Tiruvallur	13° 11' N 79° 52' E 87 MSL	D.Thulasiraman Surface Collection 2003	Discoid Quartzite	L-122.93 mm B-122.43 mm T-50.49mm W-594 gm	Discoid Lower Palaeolithic

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Examining the artefacts found in the excavation site.

V. CONCLUSION

Pre-historic period is defined only with the help of the artefacts particularly from the tools, bone and cave drawings discovered in various parts of the world. In pre-history, people lived in groups called tribes and lived in caves or tents (houses made from animal skin). They had simple tools made from stones, bones and sticks, which they used to hunt and lived a simple life. They used to eat raw animal meat and wandered from one place to another. Prehistoric sites, distinguishable only by scatters of stone tools, are being steadily destroyed in the face of expanding agriculture and construction. The relative inaccessibility of caves with rock art has shielded them from the curse of modern graffiti, but increasing tourism, and the ravages of time are working rapidly towards washing away the colours of the past.

Till then, evidence of India's earliest inhabitants must remain buried, forever in the shadow of more 'glorious' vestiges of the past—or face destruction under tractors and bulldozers; hence, it is our prime duty to safeguard them for posterity.

ANNEXURE-A

IMPORTANT PALEOLITHIC SITES

Tiruvallur Taluk:

1. Allikulikupakkam 2.Maduramangalam 3.Pullarampakkam 4.Siruvanjur
5. Nayappakkam 6.Tomur

Gummudipoondi Taluk:

1. Amarampedu 2.Amirtamangalam 3. Madarpakkam 4. Mangalam

Uthukottai Taluk:

1. Attirampakkam 2.Ernakuppam 3.Erumaivettipalayam 4. Gudiyam 5. Kunjaram 6.Manjakaranai 7.Mettupalayam 8.Nampakkam 9.Nelvoy 10. Neyveli 11. Odapai 12.Pondapakkam 13.Rangapuram 14. Senkunram 15.Timmabhupalapuram 16.Vadamadurai 17.Surai

Tiruttani Taluk: 1. Arumpakkam 2.Tiruvalankadu

Ambattur Taluk: 1.Tirumullaivayil

ANNEXURE-B

TABLE-1 - HUMAN EVOLUTION AND CULTURE

Though man–like apes are found in the Miocene and Pliocene, their anatomy differs markedly from that of man. Fossil man appears only in the Pleistocene. Such remains have been found in several countries of Western Europe, Southern Russia, Palestine, Iraq, China, East and South Africa and North America. They are chance finds in quarries and caves but systematic search in late Tertiary strata in these and other parts of the world are sure to yield further rich material. More common, however, are the stone implements used by early men, these being made of hard materials like Flint, Chert, Quartzite and hard Slaty Shale, and in later stage bone and ivory.

The four major periods of glaciations are the Gunz, Mindel, Riss and Wurm, are named after places in the Alpine region of Europe.

Lower Paleolithic Culture (Middle Pleistocene) which succeeding in the II Interglacial, is characterized by rather heavy Hand-Axes, with sharp edges. These are found in the terraces near Abbeville and St. Acheul in Northern France and therefore named after those places. The Abbevillean is slightly earlier than the Acheulian (also known as Chellean). Similar implements have been found in India, South Africa, Burma and China. In the Soan Valley (Potwar Plateau in western Punjab) crudely shaped choppers of this age have been found. Of about the same age are the Clactonian and early Levalloisian implements which are flakes chipped off from the heavier ones. This stage of culture is apparently associated with Pithecanthropus and Sinanthropus.

Pithecanthropus (Java man) was discovered by Eugene Dubois in 1892 in the terrace bordering the Solo river in

Java which has also yielded several other specimens. The Peking man, Sinanthropus, was found in a cave near Chou Kou Tien, some 45 km N.W of Peking and the original very meager remains were named by Davidson Black; this identification has since been fully authenticated by numerous full skeletons and skulls unearthed in the same place. From the associated materials it is surmised that the Peking man used stone implements and fire, and was probably a cannibal. The Heidelberg man found in Germany was probably a contemporary. These were all hunters who used natural rock shelters and caves.

Middle Palaeolithic, which may be assigned to the lower part of the Upper Pleistocene and to the III Inerglacial, is characterized by a variety of flaked stone implements of Mousterian Culture (after Le Moustiere in S.France), though some of the lower Palaeolithic implements also persist. This culture is also found in other countries such as Palestine, Turkestan, and East and South Africa. Some sites have yielded the Neanderthal man who may be a descendant of Heidelberg man. The Piltdown man found in a gravel quarry in Sussex, England, may probably belong to this age though he has some of the characteristics of the Peking man.

Upper Palaeolithic is contemporaneous with the last phase of Wurm glaciation, i.e, the end of Pleistocene. It is characterized by long thin sharp flakes ('Willow Leaf' and 'Laurel Leaf' flakes), stone knives, bone blades and Statuettes. Cave painting appear in the Pyrenees and Southern France. The culture levels are called Aurignacian, closely followed by Solutrian and Magdalenian. The Cro-Magnon man is mainly Upper Palaeolithic and approximates to Homo sapiens. It is thought that the Aurignacian and Solutrian Cultures were those of a cave-dweller while the Magdalenian was that of a nomad.

Mesolithic is not very well defined and has not been identified in some areas. It centered around 20,000 B.C. The stone implements of this age are small and sharp and carefully made. This culture has been called Azilian and by other names. The next stage is the Neolithic by which time great cultural advances had been made. It may have been around 8,000 B.C. The pig, cow, sheep and perhaps even the ass and the horse had been domesticated.

ANNEXURE-C

TABLE-1 - HUMAN CULTURE LEVELS

AGE	GLACIATION	HUMAN CULTURE
RECENT	**Post-Glacial**	2000 B.C. Iron Age 3500 B.C Bronze Age - Use of copper and bronze - early civilization 8000 B.C Neolithic - Animals domesticated; agriculture and settled communities 20000 B.C Mesolithic - Azilian, Meglemosian, etc
UPPER PLEISTOCENE	**IV Glacial** **III Inter - Glacial**	Upper Palaeolithic - Auringnacian, Solutrian, Megdalenian, etc Middle Palaeolithic - Mousterian, Levalloisian
MIDDLE PLEISTOCENE	**III Glacial** **II Inter - Glacial** **II Glacial**	Early Levalloisian Lower Palaeolithic: Acheulian - Chellean Abbrevillean - Clactonian
LOWER PLEISTOCENE	**I Inter - Glacial** **I Glacial**	Pre-Palaeolithic - Earliest stone age with very crude implements

ANNEXURE-D

TABLE - 2 - GRADE SIZES OF ROCK FRAGMENTS

GRADE	RANGE OF SIZES OF FRAGMENTS	MAIN GROUPS
Boulder	Greater than 200 mm	Rudytes
Cobbles	Between 200 mm and 50 mm	Rudytes
Pebbles	Between 50 mm and 10 mm	Rudytes
Gravel	Between 10 mm and 2 mm	Gravel
Very Coarse Sand	Between 2 mm and 1 mm	Sand
Coarse Sand	Between 1 mm and 0.5 mm	Sand
Medium Sand	Between 0.5 mm and 0.25 mm	Sand
Fine Sand	Between 0.25 mm and 0.10 mm	Sand

ANNEXURE-E

TABLE - 3 - GEOLOGICAL TIME SCALE

(Figures without bracket show the total duration of the Group or system in millions of years, while those within brackets show the lapse of time from the beginning of the particular era or period of the present)

GROUP	SYSTEM	CHIEF FOSSILS
Quaternary	Recent (.01)	Living animals
	Pleistocene 1 (1)	Man appears. Many mammals die off during glacial periods
Tertiary or Kainozoic	Pliocene 7 (8)	Mammals, mollusca and flowering plants dominant. Division largely based on proportion of living to extinct species of mollusca and the presence of mammal species.
	Miocene 17 (25)	
	Oligocence 13 (38)	
	Eocene 27 (65)	
Secondary or Mesozoic	Cretaceous 75 (140)	Giant reptiles and ammonites disappear at the end. Flowering plants become numerous.
	Jurassic 60 (200)	Ammonites abundant. First birds, flowering plants and sea urchins.
	Triassic 40 (240)	Ammonites, reptiles and amphibian abundant. Arid climate.
Primary or Palaeozoic	Permian 50 (290)	Trilobites disappear at the end
	Carboniferous 60 (350)	Many non-flowering plants; first reptiles appear.
	Devonian 60 (410)	Abundance of Corals, Brachiopoda; first amphibians and lung - fishes.
	Silurian 35 (544)	Graptolites disappear at the end; first fishes; probably first land plants.
	Ordovician 60 (505)	Abundance of Trilobites, and Graptolites.
	Cambrian 100 (605)	Abundance of Trilobites.
Pre-Cambrian	Pre-Cambrian (2500)	Soft-bodied animals and plants.
Archaean	Archaean (3600)	Lifeless

ANNEXURE-F

BIOGRAPHY OF ROBERT BRUCE FOOTE

R.B.Foote, F.G.S joined the G.S.I in September 1858 at the age of 24 years and contributed his research work on geology for 33 years and retired as Senior Superintendent in 1891. Much of his works were confined to Madras Presidency. Outstanding works of his researches are the recognition and separation of the Dharwar System from crystalline rocks of the peninsular complex of south and established division of the Archaean rocks into two entirely distinct systems. His paper on "The Dharwar System, the Chief Auriferous rock series of South India" is an important land mark in Indian Geology.

Besides monumental work on the crystalline rocks of Peninsular India, his remarkable contribution on Pleistocene, Palaeobotany and Stratigraphy was so significance. He carried out exploration and excavation at the ancient caves of Billasurgam in Kurnool in 1864 and 1866 and found number of prehistoric fauna and artifacts.

His great work on prehistory compared to research work on solid geology was much greater. His first discovery of Palaeolithic implements was from laterite gravel at Pallavaram on 30th May, 1863 in Madras, followed by further finds in Attirampakkam Nallah in September 1863. Since then as many as 459 prehistoric sites in peninsular, among these 42 sites belong to Palaeolithic and 252 sites belong to Neolithic period. Bruce Foote's Hand-Axes from the laterite gravel of Pallavaram and Attirampakkam established the existence of

Pleistocene man in India in 1866. Also, he brought to light the problem of the hiatus between the formation containing Palaeolithic and Neolithic artifacts in India.

Foot's discovery of microilthic embedded in Teris at Tinnevelly near the tip of peninsular followed up by Aiyappan and later Zeuner and Allchin, confirming a high antiquity of the Teri Industry. Because of his pioneer work on prehistory and prehistoric geology, he is aptly described as "Father of Indian Prehistory".

His extensive collections of prehistoric artifacts from various parts Madras, Mysore, Hyderabad and Baroda was purchased by the Madras Government in 1904 and a special hall was built for its reception in the Archaeology section in the Madras Museum. The catalogue of his collection in two volumes was posthumously published in 1914 by the Madras Government Museum. Some of his collection also housed in Indian Museum, Calcutta, veritable treasures for research scholars in Prehistory.

Robert Bruce Foote who is the builder of plinth of Prehistoric researches in India died on the 29th December 1912 at the age of 78 years. He was cremated in Calcutta and ashes interred in Trinity Church Cemetery, Yercaud, Tamil Nadu.

GLOSSARY

01. Abbeville – Place in the Northern France, key locality showed man was of great antiquity. Type locality of Abbevillian technique tools.

02. Archaeology – Study of ancient remains. Greek word Archaios means ancient and logos means science.

03. Boulder – Detrital material with more than 200 mm in diameter.

04. Carnelian - Red variety of quartz mineral.

05. Chert – It is light to dark in colour. It is a cryptocrystalline variety of quartz. It has the characteristic of taking sharp edges while breaking.

06. Cobble – Detrital material with diameter between 200 and 50 mm.

07. Conglomerate – These rocks consists of more durable detrital material which is more or less round in shape, in fine grained matrix.

08. Fauna – A collective term of the animals or animal life to a region.

09. Flint – Cryptocrystalline variety of quartz. It is white in colour. It has the characteristic of taking sharp edges while breaking.

10. Flora – Flower, plants, etc, those indigenous to any distinct; region or period.

11. Fossil – Any remains, impressions or trace of animal or plant of former geological age found in the earth's crust or strata.
12. Gondwana Formation – The name derived from the kingdom of the Gonds, a great and ancient tribe who still inhabit the central provinces (Madya Pradesh) where these formations were studied by H.D.Medlicott. The rocks forming this group are of fluviatile or lacustrine nature and formed during Upper Carboniferous period (300 million years from present).
13. Igneous rock – Rocks formed by the consolidation of molten magma are said to be primary or igneous rocks.
14. In situ – Artefacts or other material found at its place of origin. Not transported by any means.
15. Laterite – It is reddish, porous, concretionary material in tropical and sub-tropical area.
16. Megalithic – Mega – big, Lithic- stone
17. Mesolithic – Meso –Middle , Lithic – stone
18. Neolithic – Neo – New, Lithic – Stone
19. Palaeolithic – Palaeo – Old, Lithic – Stone
20. Pebble - Detrital material with diameter between 50 and 10 mm.
21. Petrology – It is the science of rocks of which the earth is built.
22. Provenance – Place of origin or source place.
23. Quartz – It is Silicon – di –Oxide and found abundant next to Feldspar.
24. Quartzite rock – It is a metamorphosed rock of sandstone. The chief constituent is quartz.

25. Rock – The term denotes any hard, solid material derived from the earth. It is an assemblage of one or more minerals.

26. Sedimentary or detrital rock – These rocks are formed by the deposition of solid materials carried in suspension by the natural agencies.

27. Stratigraphy – Succession of superposition of sedimentary rock formation in chronological order.

28. St.Acheul – Saint Acheul, near Amiens in Somme Valley, in Northern France. Type locality of Acheulian technique tools.

29. Tuyures – Terracotta pipes used for iron smelting.

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